



IOWA
Department of
Natural Resources

Environmental Management Systems Pilot Program

EMS Monitoring and Measurement





GRESHAM
SMITH AND
PARTNERS

Monitoring and Measuring

- Monitoring and Measurement allows an organization to determine whether or not it is making progress towards achieving its environmental Objectives and Targets
- Ultimately, these “metrics” are the indicator of whether EMS is functioning as designed



Iowa EMS Definition

- Monitoring and Measurement – A documented process for monitoring key activities and measuring performance related to the specific environmental objective and target



Metrics-- What are they?

- A mechanism to demonstrate your EMS is working successfully
- An indicator of environmental performance
 - Are you reducing your Environmental Impacts and by how much?





Metrics– Why use them?

- Metrics are used to evaluate the success of the EMS and determine progress on the Objectives and Targets
 - Success of the EMS
 - Progress on Objectives and Targets
- If the metric is going the “wrong way”, it is important factor to consider in the reevaluation and modification process



Typical Examples

Air Emissions	Tons of NOx Per Day
Waste Generation	Tons Per Year
Notices of Violation	Number Per Year
Energy Use	kWh
Water Use	Gallons
Assessment Findings	Number
Quantity of Recycled Materials	Tons per year



Metrics

- ◉ Metrics associated with Objectives and Targets are generally NOT:
 - Development of Plans
 - Submittal of Permits
 - Review of Documents
 - Testing of Technology
- ◉ But these metrics may be important, especially in the early stages of EMS development
- ◉ These metrics also may be helpful in determining whether your action plan is making progress



Metrics (continued)

- ◉ Metrics associated with the progress of the EMS
 - Number of employees trained
 - Number of assessment findings or severity of assessment findings
 - Number of requests for information from the public



Metrics

SEEMS EASY...

- ◉ Caution!!!
 - Metrics can greatly increase costs and not accurately reflect your Environmental Performance
 - Goal – Keep it Simple



Starting Metrics

- ◉ After Determining What You “Want” to Measure
 - Evaluate Data Already Available
 - Are you tracking information for another purpose like waste tracking for fee billing?
 - How much data is available?
 - Is it reliable?
 - Does it provide the metric you need?





Metrics (Continued)

- ⦿ If Data is not available, consider the Following:
 - How Difficult is it to Get the Data?
 - Costs
 - Frequency
 - Availability
 - Time to Track
 - IS IT WORTH IT???
 - Or Can you find a substitute that may be “close enough”



Metrics— Examples

- ⦿ Reduce Greenhouse Gases by 5% by December, 31, 2012
 - Tons of CO2 Equivalents
- ⦿ Implement an E-Waste Program by March, 15, 2011
 - E-Waste Program In Place
- ⦿ Comply with Spill Prevention Control and Countermeasures Requirements by February 20, 2010
 - SPCC Plan Updated





Metrics-- Examples

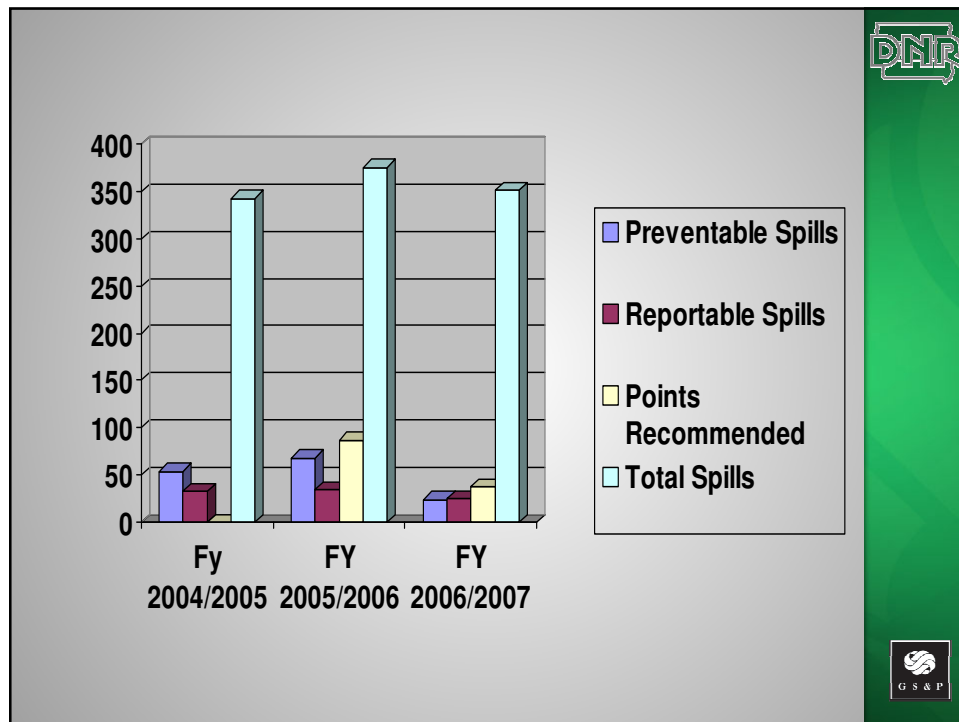
- ◉ Reduce Fuel Consumption of Trash Trucks by 10% by July 2011
 - Gallons of Diesel
- ◉ Increase Yard Waste Collection Service Area by 25% by September 2012
 - Square Miles, or
 - Number of Residents Served
- ◉ Reduce Oil and Chemical Spills to less than 1 per month
 - Number of Spills/Month



Collecting Data Example

- ◉ Stormwater Quality
 - Evaluate a facility's improvement in stormwater quality
 - Collect samples from outfall as required by the storm water permit
 - Quarterly reporting
 - Evaluate results





Metrics— Best Practices

- ⦿ Match with the Objective and Target
 - May need a metric with action plan items, or simply tracking completion may suffice
- ⦿ Keep it simple, but meaningful
- ⦿ Avoid costly data gathering, if possible
- ⦿ Sometimes collecting metric data from staff can be difficult
- ⦿ Evaluate data through time




Metrics -- Exercise

- Use the Objectives and Targets you developed in the previous exercise, and determine Metrics for measuring progress. Fill in as many as you can.
 - Washing Dishes
 - Mowing the Lawn
 - Waste Generation
 - Use of Lighting




Report Out



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QUESTIONS?



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